Patent claims

1. A method for interference analysis for a mobile radio network comprising an adaptive antenna in at least some of its cells (figure 4 *BSi*) and having traffic channels and control channels

- in which (figure 6) for the mobile radio network frequency allocation planning, in each case the interference ratio (C/I or $I_{i,j}$) of the interference (I) of the traffic channels (11;12 ... 18 in figure 3 and *BSi*, *BSj* in figure 6) of an adaptive antenna of a first cell (*BSj*) with traffic channels of an adaptive antenna of a second cell (*BSi*) is calculated as a sum of the interference probabilities ($Prob\ \{MS\ in\ beam\ b\}.Prob\ (MS\ in\ beam\ a).I_{ib,jo}$)
weighted with the traffic values of the individual part-cells, of the interferences of in each case one traffic channel of the adaptive antenna of the first cell with a user signal of in each case one traffic channel of the adaptive antenna of the second cell by adding the values of the traffic in all part-areas of the radio cell part-areas covered by the beams of the adapted antennas of the first and second cell,

- in which (figure 5) the interference ratio (I_{ij}) of the interference of a traffic channel of a first cell (*BSj*), without adaptive antenna with traffic channels of a second cell (*BSi*) with an adaptive antenna is calculated as the sum of the interference probabilities ($Prob\ (MS\ in\ beam\ b).I_{ib,t}$),

weighted with the traffic values of the individual part cells, of the interferences of this traffic channel of the first cell (*BSj*) with in each case one traffic channel (19, 20, 21) of the adaptive antenna of the second cell (*BSi*) by adding the values of the traffic in all part-areas of the radio cell part-areas covered by the beams of the adaptive antenna,

- in which (figure 7) the interference ratio of the interference of a control channel of a first cell (*BSi*) with or without adaptive antenna with a control channel of a second cell (*BSj*) with or without adaptive antenna referred to the total cell area is calculated from the user signal/interference signal ratio ($(I_{j,t})\_tb$) of these control channels in the total cell area in each case without taking into consideration any adaptive antennas of one or both of these cells (*BSj*, *BSi*).

2. The method as claimed in claim 1, wherein another value is specified as interference threshold value, above which a co-frequency exclusion of considered cells is defined, for the interference between traffic channels than for the interference between traffic channels and control channels.

3. The method as claimed in claim 1 or 2, wherein a beam of a radio cell can in each case cover a local part-area of the radio cell area.

4. The method as claimed in one of the preceding claims, wherein in each case the sum of the values of the traffic in all part-areas of the radio cell part-areas covered by the beams of the adaptive antenna is defined as traffic in an area covered by an adaptive antenna of a cell.

5. A frequency planning device for the interference analysis of a mobile radio network having at least some cells comprising an adaptive antenna and having traffic channels (TCH) and control channels (BCH, BCCH, etc.), which are designed in such a manner,

- that (figure 6) for the mobile radio network frequency allocation planning, the interference ratio (C/I) of the interference (I) of the traffic channels of a first cell (*BSj*) comprising an adaptive antenna with traffic channels of a second cell (*BSi*) comprising an adaptive antenna to a user signal in a second cell (*BSi*) is calculated as the sum of the interference probabilities
($Prob\ \{MS\ in\ beam\ b\}.Prob\ (MS\ in\ beam\ a).I_{ib,jo}$),
weighted with the traffic values of the individual part-cells, of the interferences of in each case one traffic channel (25; 26) of the adaptive antenna of the first cell with a user signal of in each case one traffic channel of the adaptive antenna of the second cell (*BSi*),

- that (figure 5) the interference ratio of the interference of a traffic channel of a first cell without

adaptive antenna with traffic channels of a second cell (*BSi*) comprising an adaptive antenna is calculated as the sum of the interference probabilities *(Prob (MS in beam b).* $I_{ib,t}$*)*, weighted with the traffic values of the individual part-cells, of the interferences of a traffic channel of the first cell (*BSj*) with in each case one traffic channel of the adaptive antenna of the second cell (*BSi*),

- that (figure 7 top right) the interference ratio of the interference of a control channel of a first cell (*BSj*) with or without adaptive antenna with a control channel of a second cell (*BSi*) with or without adaptive antenna referred to the total cell area is calculated from the user signal/interference signal ratio ($I_{j,i}$) of these control channels in the total cell area in each case without taking into consideration any adaptive antennas of one of these cells (*BSj, Bsi*).